



# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>IOWA, Central</u></b>									
<b>Ringgold County</b>									
10 SE Mt Ayr to 9 S Kellerton	04	1815CST 1817CST	1	50	0	0		5K	Tornado (F1)
Tornado crossed into Iowa from Harrison County, MO and passed across a few farm fields before lifting.									
<b>Ringgold County</b>									
7 SW Kellerton	04	1820CST			0	0	20K	20K	Hail(4.50)
<b>Ringgold County</b>									
Mt Ayr	04	1820CST			0	0	5K	2K	Hail(1.00)
<b>Decatur County</b>									
Grand River to 6 S Grand River	04	1852CST			0	0	25K	30K	Hail(2.75)
<b>Decatur County</b>									
Leon	04	1900CST			0	0	5K	2K	Hail(1.00)
<b>Jasper County</b>									
3 SE Reasnor	04	1903CST			0	0	1K	5K	Hail(0.88)
<b>Decatur County</b>									
3 W Garden Grove	04	1905CST			0	0	1K		Thunderstorm Wind (EG52)
<b>Decatur County</b>									
1 S Davis City	04	1906CST			0	0		5K	Hail(0.75)
<b>Clarke County</b>									
6 SW Osceola	04	1920CST			0	0	2K	5K	Hail(0.88)
<b>Poweshiek County</b>									
Grinnell	04	1935CST			0	0	5K	1K	Hail(1.00)
<b>Wayne County</b>									
3 SW Corydon	04	1945CST			0	0	5K		Thunderstorm Wind (EG52)
<b>Poweshiek County</b>									
Grinnell	04	1947CST			0	0	1K	1K	Hail(0.88)
<b>Warren County</b>									
2 NE New Virginia	04	1949CST			0	0	1K		Thunderstorm Wind (EG52)
<b>Polk County</b>									
Des Moines Arpt	04	1950CST			0	0	1K		Thunderstorm Wind (EG52)
<b>Lucas County</b>									
Chariton Muni Arpt	04	1957CST			0	0	2K		Thunderstorm Wind (MG52)
<b>Warren County</b>									
Norwalk	04	1957CST			0	0	3K		Thunderstorm Wind (EG55)
<b>Marion County</b>									
Knoxville	04	2014CST			0	0	2K		Thunderstorm Wind (MG53)
<b>Marion County</b>									
Knoxville	04	2015CST			0	0	10K		Thunderstorm Wind (EG57)
<b>Wayne County</b>									
1 W Humeston	04	2015CST			0	0	5K	5K	Hail(1.00)
<b>Jasper County</b>									
Prairie City	04	2026CST			0	0	3K		Thunderstorm Wind (EG52)
<b>Jasper County</b>									
Newton	04	2035CST			0	0	5K		Thunderstorm Wind (EG55)
<b>Marion County</b>									
Pella	04	2036CST			0	0	1K		Thunderstorm Wind (MG52)



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### IOWA, Central

<b>Appanoose County</b>									
Centerville	04	2040CST			0	0	10K		Thunderstorm Wind (EG57)
<b>Jasper County</b>									
Newton	04	2045CST			0	0	1K		Thunderstorm Wind (EG50)
<b>Mahaska County</b>									
New Sharon	04	2045CST			0	0	2K		Thunderstorm Wind (EG50)
<b>Jasper County</b>									
Newton	04	2049CST			0	0	5K		Thunderstorm Wind (EG57)
<b>Mahaska County</b>									
Fremont	04	2100CST			0	0	2K		Thunderstorm Wind (EG50)
<b>Poweshiek County</b>									
Montezuma	04	2110CST 2120CST			0	0	5K		Thunderstorm Wind (EG50)
<b>Marshall County</b>									
Laurel	04	2113CST			0	0	5K		Thunderstorm Wind (EG52)
<b>Tama County</b>									
Toledo	04	2120CST			0	0	2K		Thunderstorm Wind (EG52)
<b>Tama County</b>									
2 N Clutier	04	2125CST			0	0	2K		Thunderstorm Wind (EG50)
<b>Bremer County</b>									
Plainfield	04	2212CST			0	0	2K		Thunderstorm Wind (EG52)
<b>Bremer County</b>									
Plainfield	04	2215CST			0	0	5K		Thunderstorm Wind (EG52)

A very active pattern was in place over the central U.S. During the previous night, a strong short wave lifted northeast across the area, setting off a round of thunderstorms. The thunderstorms moved northeast of the area by afternoon with a large area of subsidence moving into Iowa. This allowed the atmosphere to recover during the afternoon. An upper level closed low pressure area was positioned over western and central Nebraska during the afternoon and evening hours. The low lifted northeast as a surface dry line extending south from the low advanced east across Kansas. The airmass was quite unstable with lifted indices around -8 C. by late afternoon and mixed layer CAPE values in the 3000 to 4000 J/kg range. The freezing level at the beginning of the event was around 14,000 feet. Thunderstorms became tornadic to the southwest of Iowa during the late afternoon. One of the storms produced a tornado in northern Missouri which crossed into Ringgold County. The tornado passed through farm fields for about a mile before lifting. Little damage resulted. The storms moved in to south central Iowa and produced some very large hail. Softball size hail fell during the early stages of the event in Ringgold County, with baseball size hail in Decatur County. As the system moved northeast, hail sizes decreased and the event turned into more of a wind event. There were several reports of 55 to 65 MPH winds received as the line lifted northeast. Some damage occurred, however the damage was not widespread.

### **Black Hawk County** **6 S Hudson**

06	1404CST			0	0	1K	5K	Hail(0.01)
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An unstable airmass was in place over Iowa with surface temps in the mid to upper 80s and dew points in the mid 60s. The Lifted Index fell to about -5 C. during the mid afternoon, with CAPE values around 2000 J/kg. Isolated thunderstorms developed. One became severe briefly and dropped nickle size hail in Black Hawk County south of Hudson.

### **Webster County** **Ft Dodge**

08	0443CST			0	0	5K		Thunderstorm Wind (MG53)
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					Killed	Injured	Property	Crops	
<u>IOWA, Central</u>									
Hardin County Alden	08	0529CST			0	0	5K	5K	Hail(1.00)
Hardin County 2 SW Iowa Falls	08	0553CST			0	0		5K	Hail(0.75)
Hardin County Iowa Falls	08	0557CST			0	0		5K	Hail(0.75)
Hardin County Hubbard	08	0610CST 0710CST			0	0		5K	Hail(0.75)
Story County 3 W Zearing	08	0610CST			0	0		5K	Hail(0.75)
Hardin County Hubbard	08	0611CST			0	0		5K	Hail(0.75)
Grundy County Beaman	08	0645CST			0	0	2K		Thunderstorm Wind (EG50)
Cass County Atlantic	08	0706CST			0	0		5K	Hail(0.75)
Union County Kent	08	0732CST			0	0	5K	5K	Hail(1.00)
Jasper County Newton	08	0749CST			0	0	2K	5K	Hail(0.88)
Jasper County Newton	08	0750CST			0	0	5K	5K	Hail(1.00)
Union County Afton	08	0807CST			0	0	2K	5K	Hail(0.88)
Clarke County Murray	08	0822CST			0	0	2K		Thunderstorm Wind (EG52)
Jasper County 6 S Colfax	08	0838CST			0	0	5K		Thunderstorm Wind (MG54)
IAZ027>028-038>039-049>050-061>062-074>075-085>086									
	08	0900CST 1100CST			0	0	240K		High Wind (EG50)
Appanoose County Moravia	08	0920CST			0	0		5K	Hail(0.75)
Poweshiek County Searsboro	08	0941CST			0	0	10K		Thunderstorm Wind (EG61)
Wapello County Ottumwa	08	0952CST			0	0	10K		Thunderstorm Wind (EG57)
Wapello County Ottumwa	08	0956CST			0	0	2K	5K	Hail(0.88)
Wapello County Ottumwa	08	0958CST			0	0	5K		Thunderstorm Wind (EG52)
Mahaska County 6 N Rose Hill	08	1000CST			0	0	1.5K		Lightning
Wapello County Ottumwa	08	1015CST			0	0	10K		Thunderstorm Wind (EG57)



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### IOWA, Central

#### Davis County

##### Bloomfield

**08 1033CST 0 0 10K Thunderstorm Wind (EG57)**

A strong mesoscale convective system developed over the High Plains during the previous night. The system initially drifted northeast, however as the night progressed it began to turn southeast. The airmass was ahead of the system was fairly unstable with surface dew point values in the mid to upper 60s. Lifted indices were in the -3 C. range with CAPE values in the 1000 to 2000 J/kg range. As the MCS turned southeast, it began to gain strength in spite of the fact that it moved through Iowa during the morning hours. It moved through as an arced line of thunderstorms, producing 55 to 65 MPH winds in many locations. There were a few reports of hail, however most of the hail was below an inch in diameter. During the later stages of the systems life, a wake low formed behind the main line. This produced high winds over a large part of the east third of Iowa. Winds gusted to near 60 MPH with numerous reports of tree and power line damage. Trees were reportedly blown down on several homes in Wapello County in the Ottumwa area. The damage was caused by high winds during this event and not during the thunderstorms that came before, however it is possible the trees may have been weakened by the initial thunderstorms. Damage was fairly widespread, albeit fairly minor. Perhaps the reason for the widespread damage was due to the fact that the high winds event featured a southeast wind, whereas most thunderstorms in this area produce wind gusts with a dominant westerly component. As the storms moved through Mahaska County, lightning struck a house north of Rose Hill. A fire was started with damage placed at \$1,500.

#### IAZ023-033>035-045>046 Pocahontas - Sac - Calhoun - Webster - Carroll - Greene

**12 0300CST 0 0 150K 60K Flood**  
**15 0400CST**

Heavy rainfall occurred over the upper reaches of the Raccoon River during the first two weeks of the month. Some minor flooding occurred with the river rising to a couple of feet over flood stage. Damage was limited to agricultural and low land flooding for the most part.

#### Greene County

##### 3 NW Churdan

**13 1610CST 0 0 2K 5K Hail(0.88)**

#### Carroll County

##### 1 E Arcadia

**13 1630CST 0 0 10K Thunderstorm Wind (EG50)**

#### Emmet County

##### 1 W Estherville

**13 1634CST 0 0 5K Hail(0.75)**

#### Webster County

##### 2 S Gowrie

**13 1700CST 0 0 2K 5K Hail(1.00)**

#### Hancock County

##### 3 NW Britt

**13 1715CST 0 0 5K Hail(0.75)**

#### Boone County

##### Boone

**13 1732CST 0 0 10K Hail(0.55)**

#### Taylor County

##### 7 ENE Bedford

**13 1750CST 0.2 30 0 0 1K Tornado (F0)**

Tornado touched down briefly in farm fields.

#### Dallas County

##### Waukee

**13 1800CST 0 0 1K 5K Hail(0.88)**

#### Polk County

##### Clive

**13 1800CST 0 0 5K Hail(1.00)**

#### Polk County

##### Urbandale

**13 1805CST 0 0 5K Hail(1.00)**

#### Polk County

##### Grimes

**13 1811CST 0 0 2K Hail(0.88)**



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					Killed	Injured	Property	Crops	
<u>IOWA, Central</u>									
Polk County									
Johnston	13	1813CST			0	0	5K		Hail(1.00)
Polk County									
Johnston	13	1814CST			0	0	10K		Hail(1.25)
Polk County									
Johnston	13	1819CST			0	0	10K		Hail(1.50)
Polk County									
Johnston	13	1819CST			0	0	3K		Hail(0.88)
Polk County									
Ankeny	13	1822CST			0	0	3K		Hail(1.00)
Polk County									
Ankeny	13	1826CST			0	0	5K		Hail(1.00)
Polk County									
Ankeny	13	1830CST			0	0	2K		Thunderstorm Wind (EG52)
Polk County									
Ankeny	13	1831CST			0	0	5K		Hail(1.00)
Warren County									
Carlisle	13	1902CST			0	0	5K	2K	Hail(1.00)
Warren County									
3 W Milo	13	1915CST			0	0	2K		Thunderstorm Wind (EG52)
Marion County									
1 WNW Melcher	13	1930CST	0.2	30	0	0		1K	Tornado (F0)
Tornado touched down briefly in open fields west of Melcher.									
Marion County									
1 NE Melcher	13	1947CST	0.2	30	0	0		1K	Tornado (F0)
Tornado touched down briefly in fields northeast of Melcher									
Marion County									
7 NE Knoxville	13	1953CST	0.1	25	0	0			Tornado (F0)
Tornado made a brief touchdown in open areas northeast of Knoxville.									
Poweshiek County									
Montezuma	13	2053CST			0	0	2K		Thunderstorm Wind (EG50)
Poweshiek County									
Montezuma	13	2059CST			0	0	1K		Thunderstorm Wind (MG50)

An unseasonably dynamic weather pattern was in place over the central U.S. on the 13th. A closed upper level low pressure system lifted northeast out of the southwest U.S. and was centered over southeast South Dakota by the evening of the 13th. A strong mid level jet of 80 kts was present at 500 Mb. The atmosphere was unstable, but not as much as it could have been. Surface temperatures reached the low 80s with dew point readings in the 60s for the most part. CAPE values measured shortly before thunderstorm initiation were in the 1200 to 1500 J/kg range with lifted indices in the -4 to -7 C. range. With the upper low moving into the area, cooling took place in the mid and upper levels of the atmosphere during the day with the freezing level dropping to under 11,000 feet over western Iowa. The freezing level was around 12,500 over the eastern counties. Lapse rates were around 8 C. in the 850 to 700 mb layer. Thunderstorms formed over eastern Nebraska by the late afternoon hours. They formed along the west edge of the dry slot, then lifted northeast across the CWA. Although the expectation of tornadoes was there, the lifted condensation level was fairly high and limited the number of tornadoes. Three did touch down in Marion County during the evening hours. Two of them were in the Melcher area and touched down briefly in farm fields around town. A third tornado touched down northeast of Knoxville in a field. Little damage was reported. Earlier there was another brief touchdown in open country east of Bedford in Taylor County. The main severe weather mode with the storms was hail. There were numerous reports of hail in the three quarter to one inch range all along the line. One of the stronger storms dropped one and one half inch diameter hail in Polk County at Johnston. A few of the storms produced high winds with scattered damage reported. semi tractor-trailer truck was blown over east of Arcadia in Carroll County along U.S. Highway 30.



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					Killed	Injured	Property	Crops	
<u>IOWA, Central</u>									
Emmet County									
1 NE Armstrong	20	1555CST			0	0	2K		Thunderstorm Wind (EG52)
Emmet County									
1 N Gruver	20	1555CST	0.2	30	0	0			Tornado (F0)
Tornado touched down briefly in open fields north of Gruver.									
Winnebago County									
Thompson	20	1610CST			0	0	3K		Thunderstorm Wind (EG50)
Winnebago County									
Forest City	20	1615CST			0	0	3K		Thunderstorm Wind (EG50)
Kossuth County									
2 WSW Lakota	20	1617CST			0	0		5K	Hail(0.75)
Kossuth County									
10 W Bancroft	20	1625CST			0	0		5K	Hail(0.88)
Hancock County									
6 NE Britt	20	1635CST			0	0	2K		Thunderstorm Wind (EG50)
Winnebago County									
Buffalo Center	20	1645CST			0	0	5K		Thunderstorm Wind (EG57)
Palo Alto County									
4 E Mallard	20	1658CST			0	0	5K		Thunderstorm Wind (EG57)
Humboldt County									
Humboldt	20	1720CST			0	0	4K		Thunderstorm Wind (EG52)
Humboldt County									
2 W Rutland	20	1721CST			0	0			Thunderstorm Wind (EG50)
Webster County									
Ft Dodge	20	1730CST			0	0	10K		Thunderstorm Wind (EG57)
Webster County									
Ft Dodge	20	1736CST			0	0	2K		Thunderstorm Wind (EG50)
Webster County									
Ft Dodge	20	1737CST			0	0	2K		Thunderstorm Wind (EG52)
Webster County									
Ft Dodge	20	1738CST			0	0	2K		Thunderstorm Wind (EG50)
Webster County									
Ft Dodge	20	1740CST			0	0	2K		Thunderstorm Wind (EG50)
Webster County									
5 W Ft Dodge	20	1745CST			0	0	3K		Thunderstorm Wind (EG57)
Humboldt County									
Humboldt	20	1746CST			0	0	10K		Thunderstorm Wind (EG50)
Greene County									
7 E Churdan	20	1800CST			0	0	10K		Thunderstorm Wind (EG57)
Webster County									
2 S Gowrie	20	1800CST			0	0	3K		Thunderstorm Wind (EG52)
Greene County									
Scranton	20	1810CST			0	0	1K		Thunderstorm Wind (EG50)
Webster County									
2 S Gowrie	20	1815CST			0	0		5K	Hail(0.88)
Webster County									
2 S Gowrie	20	1815CST			0	0	1K		Thunderstorm Wind (EG50)



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					Killed	Injured	Property	Crops	
<u>IOWA, Central</u>									
Boone County Ogden	20	1817CST			0	0	5K		Thunderstorm Wind (EG50)
Greene County Jefferson	20	1820CST			0	0	5K		Thunderstorm Wind (EG57)
Dallas County Perry	20	1824CST			0	0	2K		Thunderstorm Wind (EG50)
Boone County 4 ESE Boone Muni Arpt	20	1825CST			0	0	5K		Thunderstorm Wind (EG52)
Story County Ames	20	1825CST			0	0	2K		Thunderstorm Wind (MG50)
Story County Story City	20	1825CST			0	0	2K		Thunderstorm Wind (EG50)
Story County 1 NE Ames	20	1827CST			0	0	1K		Thunderstorm Wind (EG50)
Boone County Madrid	20	1828CST			0	0	5K		Thunderstorm Wind (EG50)
Boone County Madrid	20	1830CST			0	0	5K		Thunderstorm Wind (MG58)
Guthrie County 2 E Bagley	20	1830CST			0	0	2K		Thunderstorm Wind (EG50)
Story County 2 W Nevada	20	1830CST			0	1	10K		Thunderstorm Wind (EG50)
Boone County Madrid	20	1831CST			0	0	2K		Thunderstorm Wind (MG50)
Story County Nevada	20	1831CST			0	0	5K		Thunderstorm Wind (MG57)
Boone County 5 S Berkley	20	1835CST			0	0	5K		Thunderstorm Wind (EG57)
Dallas County 1 S Dallas Center	20	1835CST			0	0	5K		Thunderstorm Wind (EG52)
Story County Ames	20	1835CST			0	0	5K		Thunderstorm Wind (EG50)
Story County Nevada	20	1835CST			0	0	5K		Thunderstorm Wind (EG50)
Polk County Windsor Hgts	20	1842CST			0	0	1K		Thunderstorm Wind (EG50)
Story County Nevada	20	1845CST			0	0	2K		Thunderstorm Wind (EG50)
Story County Nevada	20	1845CST			0	0	15K		Thunderstorm Wind (EG57)
Polk County Ankeny	20	1853CST			0	0	10K		Thunderstorm Wind (EG52)
Polk County Ankeny	20	1857CST			0	0	3K		Thunderstorm Wind (EG50)
Marshall County 3 SW State Center	20	1900CST			0	0	3K		Thunderstorm Wind (EG52)
Polk County Urbandale	20	1900CST			0	0	1K		Thunderstorm Wind (EG50)



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### IOWA, Central

<b>Polk County</b>									
<b>Altoona</b>	<b>20</b>	<b>1902CST</b>			<b>0</b>	<b>0</b>	<b>1K</b>		<b>Thunderstorm Wind (EG52)</b>
<b>Marshall County</b>									
<b>State Center</b>	<b>20</b>	<b>1910CST</b>			<b>0</b>	<b>0</b>	<b>25K</b>		<b>Thunderstorm Wind (EG61)</b>
<b>Polk County</b>									
<b>West Des Moines</b>	<b>20</b>	<b>1910CST</b>			<b>0</b>	<b>0</b>	<b>1K</b>		<b>Thunderstorm Wind (EG50)</b>
<b>Polk County</b>									
<b>Bondurant</b>	<b>20</b>	<b>1912CST</b>			<b>0</b>	<b>0</b>	<b>3K</b>		<b>Thunderstorm Wind (EG57)</b>

An unstable airmass was in place over the central U.S. on the afternoon of the 20th. A large area of high pressure aloft was located over the west half of the country, placing Iowa in a large scale northwest flow pattern. A weak cold front dropped southeast through the Dakotas and approached northwest Iowa. At the same time, a series of MCS's developed over the Rockies, and rode around the upper level ridge of high pressure. During the day, the dew points across Iowa warmed into the mid 60s to mid 70s with surface temperatures in the mid to upper 80s. The lifted index by evening was in the -5 C. range with CAPE values in the 2000 to 3000 J/kg range. The provided a rich environment for an MCS that approached the state during the later part of the afternoon. The MCS developed over eastern Wyoming and southwest South Dakota earlier in the day. As it overtopped the upper ridge, it turned southeast into Iowa. As it did, the storms took on more of a bow echo appearance and the cluster became a small Derecho. Early on in the event a tornado touched down briefly in Emmet County north of Gruver. It was in open fields and caused little damage. The main mode of severe weather was in the form of high winds. There were few hail reports, however with the freezing level above 16,500 feet, hail was limited. The winds caused widespread damage from Emmet County, east to Winnebago County, then south into the central part of the state about as far south as Interstate 80. South of this area no damage was reported as the storms weakened rapidly. Two semi-tractortrailer trucks were overturned in Story County by the high wind about 2 miles west of Nevada. There was one injury from this. One of the drivers had to be rescued as he hung over the edge of a bridge. He was taken to hospital, treated, and released. There were numerous reports of tree and power line damage over the northwest, north central, and central counties of the state. High winds blew windows out of a home at the ISU Agronomy Farm. Structural damage was reported in Marshall County at State Center. The roof of a large building with a roof of less than two years of age received damage. A high school roof in Story County at Nevada had its roof partially peeled back as well. In addition to these reports, there were scattered reports of outbuildings and sheds being flattened by the wind. Visibility during the high winds was occasionally reduced to near zero in blowing dust by the time the storms reached central Iowa. The gust front from the storms had moved well ahead of the storms themselves, some 10 to 15 miles ahead, with some of the areas receiving severe winds not receiving any rainfall at all.

<b>Hardin County</b>									
<b>5 SW Iowa Falls</b>	<b>24</b>	<b>1627CST</b>			<b>0</b>	<b>0</b>	<b>1K</b>	<b>5K</b>	<b>Hail(0.88)</b>
<b>Carroll County</b>									
<b>Glidden</b>	<b>24</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>	<b>5K</b>	<b>Hail(0.88)</b>
<b>Greene County</b>									
<b>4 W Scranton</b>	<b>24</b>	<b>1705CST</b>			<b>0</b>	<b>0</b>	<b>3K</b>	<b>5K</b>	<b>Hail(1.00)</b>
<b>Webster County</b>									
<b>Countywide</b>	<b>25</b>	<b>0500CST 1300CST</b>			<b>0</b>	<b>0</b>	<b>100K</b>	<b>10K</b>	<b>Flash Flood</b>

An unstable airmass was in place over Iowa as a cold front approached from the northwest. Surface temperatures rose into the upper 80s to low 90s in most areas with dew point readings in the low 70s. CAPE values were in the 2000 to 3000 J/kg range with lifted indices in the -5 C. range. The freezing level remained quite high, ranging from 15,500 to 17,000 feet over the CWA. Deep moisture was in place with precipitable water values in the 1.5 to 2 inch range. Thunderstorms erupted along the cold front during





# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
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### IOWA, Central

the late afternoon hours. By evening, some of the storms became severe. Hail size was reduced due to the warm atmosphere in place with the largest hail size around nickel size. The cold front stalled during the night and an east to west line of thunderstorms evolved. Very heavy rainfall occurred along this line, which extended from near Sioux City, through Fort Dodge, to north of Waterloo. In the Fort Dodge area, 6.5 inches of rain fell, resulting in widespread flooding and flash flooding in Webster County.

IAZ023-035-047

#### **Pocahontas - Webster - Boone**

25	0600CST	0	0	175K	25K	Flood
26	0300CST					

Flood waters from the previous nights rainfall continued to cause problems into the day on the 25th. Flooding took place along many creeks and small streams with numerous roads closed due to high water. A considerable amount of agricultural land was under water as well.

#### **Webster County**

##### **Countywide**

25	2230CST	0	0	75K	5K	Flash Flood
26	0500CST					

#### **Calhoun County**

##### **Countywide**

25	2300CST	0	0	50K	5K	Flash Flood
26	0500CST					

#### **Wright County**

##### **Countywide**

26	0145CST	0	0	50K	5K	Flash Flood
	0500CST					

#### **Franklin County**

##### **Countywide**

26	0330CST	0	0	50K	5K	Flash Flood
	0500CST					

The cold frontal boundary that moved into the state during the previous night began to lift north as a warm front during the afternoon of the 25th into the morning of the 26th. The atmosphere to the south of the front had considerable moisture available. Surface dew points were in the upper 60s to mid 70s during the early evening. As the low level jet strengthened to 30 to 40 kts, warm air advection thunderstorms developed in the vicinity of the frontal boundary. Though no severe weather was reported, heavy rainfall did occur. The heavy rain fell in areas that had heavy rainfall the previous night. The soils were already saturated as another one to four inches of rain fell on the area. This resulted in flash flooding in several counties during the early morning hours. Numerous County roads and Highways were flooded to a depth of several feet. There were also a few reports of road washouts. The flash flooding became widespread flooding during the day on the 26th as the water simply had nowhere to go.

IAZ016>017-023>028-  
033>039-045>050-  
059>062-074>075

#### **Hancock - Cerro Gordo - Pocahontas - Humboldt - Wright - Franklin - Butler - Bremer - Sac - Calhoun - Webster - Hamilton - Hardin - Grundy - Black Hawk - Carroll - Greene - Boone - Story - Marshall - Tama - Dallas - Polk - Jasper - Poweshiek - Marion - Mahaska**

26	0000CST	0	0	2.0M	1.4M	Flood
30	2359CST					

June temperatures averaged 73.4° or 3.6° above normal while precipitation averaged 5.19 inches or 0.55 inches above normal. This ranks as the 14th warmest and 50th wettest June among 133 years of state records. This was also the warmest June since 1991 and wettest since 2000. Rainfall, as was also the case in April and May, was heaviest in northern and western Iowa and least in the southeast. Precipitation was fairly evenly distributed through the month with the exception of the 24th-26th when torrential rain fell across portions of northern Iowa. Heaviest rains from these late month storms fell from southern Buena Vista to northern Franklin County with the highest official rain total of 8.15 inches reported at Fort Dodge. Preliminary monthly precipitation totals varied from 1.24 inches at Davenport and 1.29 inches at the Clinton Airport to 9.78 inches at Fort Dodge and 10.40 inches at Conrad. Streamflow was elevated throughout the month of June across most of north central and northwest Iowa. Generally from the Des Moines area and to the south, streamflow was normal to slightly below normal. Heavy rains at the end of June, would bring flows in rivers across south central Iowa up a little, mainly in the Chariton basin. Flooding was generally contained to the Northern Raccoon, the Des Moines River above Saylorville, the Cedar River and upper Iowa River basins, with bankfull conditions along the mainstem of the Raccoon River from Van Meter to the Des Moines River. The remainder of Iowa rivers maintained near normal streamflow conditions for June. Much of northwest, north central, into parts of central Iowa was relatively wet with precipitation at or above normal for an extended time. Conditions were relatively dry across the south. The heavy rainfall during the period from the 24th to 26th resulted in flooding along most of the rivers across the north two thirds of the CWA. Most of the significant damage occurred in several counties mentioned earlier in this report due to flash flooding. There was considerable agricultural flooding, resulting in the need to replant some of the crop. Over the course of the two month period of May and June, it was necessary to replant approximately 5% of the states corn and soybean crop. Property damage was relatively minor outside of the flash flood areas, however it was also fairly widespread.



# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed Injured	Estimated Damage Property Crops	Character of Storm
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### IOWA, Central

IAZ026>027-034>036-039 Franklin - Butler - Calhoun - Webster - Hamilton - Black Hawk

26	0500CST	1	0	400K	65K	Flood
27	0500CST					

Following the second round of heavy rainfall during the night of the 25th into the morning of the 26th, widespread flooding occurred over parts of northern Iowa. Reports indicated that most streams were out of their banks and some flooding spread into the mainstem rivers as well. Numerous highways became flooded with widespread ponding caused by the flood waters. During the afternoon of the 26th, an 8 year old male drown on a swollen river in Webster County near Fort Dodge when he was lost in the river after the raft he was on capsized. M8BO

Greene County						
Jefferson	27	1538CST	0	0	2K	5K Hail(0.88)
Hamilton County						
3 NE Jewell	27	1558CST	0	0	25K	1K Thunderstorm Wind (EG65)
Hardin County						
Iowa Falls	27	1625CST	0	0	10K	Thunderstorm Wind (EG61)
Boone County						
Ogden	27	1632CST	0	0	1K	5K Hail(0.88)
Hardin County						
Iowa Falls	27	1633CST	0	0	1K	5K Hail(0.88)
Hardin County						
Ackley	27	1650CST	0	0	2K	5K Hail(0.88)
Hardin County						
Ackley	27	1700CST	0	0	1K	5K Hail(0.88)
Hardin County						
2 S Alden	27	1700CST	0	0	5K	10K Thunderstorm Wind (EG65)
Story County						
Ames	27	1705CST	0	0	3K	Thunderstorm Wind (MG51)
Story County						
Ames	27	1710CST	0	0	3K	Thunderstorm Wind (EG50)
Hardin County						
Ackley	27	1715CST	0	0	5K	Thunderstorm Wind (EG57)
Hardin County						
Ackley	27	1721CST	0	0	1K	5K Hail(0.88)
Wayne County						
Humeston	27	2050CST	0	0	2K	5K Hail(0.88)
Wayne County						
Corydon	27	2130CST	0	0	5K	5K Hail(1.00)
Clarke County						
1 S Woodburn	27	2225CST	0	0	1K	5K Hail(0.88)
Wayne County						
3 S Corydon	27 28	2330CST 0230CST	0	0	5K	5K Flash Flood
Cerro Gordo County						
Mason City	28	0037CST	0	0		5K Hail(0.75)

A somewhat complicated weather situation took shape over Iowa during the day on the 27th. A short wave lifted northeast across the state in the morning and produced a narrow line of thunderstorms. These storms resulted in a boundary from west central into north central Iowa. During the afternoon, a cold front approached Iowa from the northwest and reached the far northwest counties by late in the day. Another short wave lifted northeast into the central U.S. during the late afternoon as well. The airmass became very unstable by the late afternoon hours with temperatures warming into the upper 80s and 90s across the state. Surface dew point readings were in the upper 60s to mid 70s. Shortly before the storms developed, lifted indices were around -9 C. with CAPE values



# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Estimated Damage Crops	Character of Storm
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### IOWA, Central

in the 4000 J/kg range. The freezing level remained quite high and was at 14,800 feet with precipitable water values in the 1.5 to 2 inch range. A line of thunderstorms formed from near Omaha northeast to west of Mason City. The storms worked their way east-southeast. A few became severe, however severe weather was quite limited. The very moist airmass, in combination with the high freezing level, limited the hail to nickel size. Winds became a problem during the later part of the event. High winds tore the roof off of a house northwest of Jewell. A wind gust of 70 MPH also occurred in Hardin County in the Iowa Falls area. Winds were strong enough south of Alden in Hardin County to totally flatten crops in the area. There were numerous reports of tree limb damage caused by 50 MPH winds, and spotty damage by 60 to 70 MPH winds. During the late evening hours, thunderstorms re-fired behind the main line of storms. A few of these storms became severe and produced three quarter to one inch diameter hail in Wayne, Clarke, and Cerro Gordo Counties. The storms also produced some locally heavy rainfall. Rainfall around the Corydon area of Wayne County reached 5 inches. This resulted in flash flooding as local creeks were running over rural roads south of Corydon.

#### **Polk County**

##### **Johnston**

**29 0931CST 0 1 25K Lightning**

Thunderstorms moved through central Iowa during the morning hours. As they passed over the NWS Forecast Office in Johnston, lightning struck the building damaging several systems and injuring one employee.

#### **Crawford County**

##### **5 E Manilla**

**29 1826CST 0 0 5K Thunderstorm Wind (EG57)**

#### **Crawford County**

##### **5 N Aspinwall**

**29 1830CST 0 0 50K Thunderstorm Wind (EG57)**

#### **Crawford County**

##### **Vail**

**29 1832CST 0 0 3K Thunderstorm Wind (EG50)**

#### **Carroll County**

##### **3 S Manning**

**29 1834CST 0 0 1K 5K Hail(0.88)**

#### **Carroll County**

##### **Carroll**

**29 1840CST 0 0 3K 5K Hail(0.88)**

#### **Carroll County**

##### **Carroll**

**29 1840CST 0 0 5K Thunderstorm Wind (EG52)**

#### **Carroll County**

##### **1 N Templeton**

**29 1845CST 0 0 2K Thunderstorm Wind (EG50)**

#### **Greene County**

##### **4 N Jefferson**

**29 1855CST 0 0 5K Thunderstorm Wind (EG52)**

#### **Greene County**

##### **Scranton**

**29 1858CST 0 0 5K Thunderstorm Wind (EG57)**

#### **Audubon County**

##### **4 W Audubon**

**29 1900CST 0 0 3K Thunderstorm Wind (EG52)**

#### **Crawford County**

##### **5 E Manilla**

**29 1902CST 0 0 1K Thunderstorm Wind (EG52)**

#### **Greene County**

##### **7 NW Jefferson**

**29 1902CST 0 0 3K Thunderstorm Wind (EG52)**

#### **Greene County**

##### **Scranton**

**29 1903CST 0 0 1K Thunderstorm Wind (EG50)**

#### **Calhoun County**

##### **Lohrville**

**29 1908CST 0 0 1K 5K Hail(0.88)**

#### **Greene County**

##### **Jefferson**

**29 1909CST 0 0 2K Thunderstorm Wind (EG52)**

#### **Calhoun County**

##### **Farnhamville**

**29 1910CST 0 0 1K Thunderstorm Wind (EG50)**

#### **Calhoun County**

##### **Farnhamville**

**29 1911CST 0 0 5K Thunderstorm Wind (MG62)**



# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

June 2005									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<u>IOWA, Central</u>									
Greene County 1 W Paton	29	1912CST			0	0	15K		Thunderstorm Wind (EG61)
Carroll County Carroll Neu Arpt	29	1918CST			0	0	2K		Thunderstorm Wind (MG53)
Webster County 4 S Ft Dodge	29	1920CST			0	0	1K		Thunderstorm Wind (EG50)
Greene County Jefferson	29	1921CST			0	0	3K		Thunderstorm Wind (MG55)
Calhoun County Lohrville	29	1923CST			0	0	3K		Thunderstorm Wind (EG50)
Boone County 6 N Boone	29	1924CST			0	0	5K		Thunderstorm Wind (EG61)
Cass County 2 N Marne	29	1930CST			0	0	30K		Thunderstorm Wind (EG61)
Boone County 9 NW Boone	29	1932CST			0	0	5K		Thunderstorm Wind (EG52)
Boone County Boxholm	29	1932CST			0	0	10K		Thunderstorm Wind (EG57)
Webster County Otho	29	1932CST			0	0	5K		Thunderstorm Wind (EG57)
Webster County Ft Dodge	29	1934CST			0	0	3K		Thunderstorm Wind (EG52)
Webster County 1 S Otho	29	1934CST			0	0	3K		Thunderstorm Wind (EG61)
Humboldt County 5 SE Dakota City	29	1935CST			0	0	3K	5K	Thunderstorm Wind (EG61)
Audubon County 5 E Exira	29	1945CST			0	0	2K		Thunderstorm Wind (EG50)
Hamilton County Stanhope	29	1945CST			0	0	10K		Thunderstorm Wind (EG57)
Cass County Anita	29	1949CST			0	0	1K		Thunderstorm Wind (MG52)
Hamilton County Webster City Arpt	29	1949CST			0	0	5K		Thunderstorm Wind (MG61)
Guthrie County 1 W Adair	29	1950CST			0	0	20K		Thunderstorm Wind (EG57)
Guthrie County 1 N Adair	29	1950CST			0	0	3K		Thunderstorm Wind (EG52)
Hamilton County Jewell	29	1951CST			0	0	5K		Thunderstorm Wind (MG59)
Adair County Adair	29	1955CST			0	0	2K		Thunderstorm Wind (EG50)
Hardin County 2 N Buckeye	29	2000CST			0	0	5K		Thunderstorm Wind (EG65)
Guthrie County 4 SW Panora	29	2005CST			0	0	1K		Thunderstorm Wind (EG50)
Wright County 1 WNW Dows	29	2005CST			0	0	2K		Thunderstorm Wind (EG50)



# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

June 2005									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<u>IOWA, Central</u>									
Guthrie County Guthrie Center Arpt	29	2007CST			0	0	5K		Thunderstorm Wind (MG64)
Franklin County 8 E Popejoy	29	2010CST			0	0	2K		Thunderstorm Wind (EG50)
Hardin County Iowa Falls	29	2010CST			0	0	10K		Thunderstorm Wind (EG61)
Franklin County Hampton	29	2018CST			0	0	1K		Thunderstorm Wind (EG50)
Franklin County 5 E Popejoy	29	2018CST			0	0	2K		Thunderstorm Wind (EG50)
Hardin County Ackley	29	2029CST			0	0	1K		Thunderstorm Wind (EG50)
Grundy County Stout	29	2035CST			0	0	1K		Thunderstorm Wind (EG50)
Cass County 4 ESE Atlantic Arpt	29	2045CST			0	0	1K	5K	Hail(0.88)
Cass County 4 ESE Atlantic Arpt	29	2045CST			0	0	2K		Thunderstorm Wind (EG52)
Bremer County Plainfield	29	2052CST			0	0	1K		Thunderstorm Wind (MG52)
Butler County Aplington	29	2052CST			0	0	1K		Thunderstorm Wind (EG50)
Polk County Ankeny	29	2058CST			0	0	3K		Thunderstorm Wind (MG53)
Polk County Ankeny	29	2058CST			0	0	3K		Thunderstorm Wind (EG52)
Jasper County 5 W Baxter	29	2115CST			0	0	5K		Thunderstorm Wind (EG61)
Jasper County Baxter	29	2123CST			0	0	1K	5K	Hail(0.88)
Jasper County Baxter	29	2125CST			0	0	1K	5K	Hail(0.88)
Jasper County 4 E Baxter	29	2125CST			0	0	25K		Thunderstorm Wind (EG73)
Bremer County Waverly	29	2135CST			0	0	2K		Thunderstorm Wind (EG50)
Marshall County 2 N Laurel	29	2136CST 2140CST			0	0	5K		Thunderstorm Wind (EG57)
Union County Creston	29	2146CST			0	0		5K	Hail(0.75)
Union County Creston	29	2147CST			0	0		5K	Hail(0.75)
Tama County Tama	29	2150CST			0	0	5K		Thunderstorm Wind (EG52)
Clarke County Murray	29	2215CST			0	0	5K		Thunderstorm Wind (EG61)



# National Weather Service

## Storm Data and Unusual Weather Phenomena



June 2005

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<b><u>IOWA, Central</u></b>									
<b>Union County</b>									
2 W Thayer	29	2215CST			0	0	10K	10K	Thunderstorm Wind (MG71)
<b>Tama County</b>									
Tama	29	2216CST			0	0	1K		Thunderstorm Wind (EG50)
<b>Taylor County</b>									
1 N Lenox	29	2220CST			0	0	30K	1K	Thunderstorm Wind (EG61)
<b>Clarke County</b>									
8 NW Osceola	29	2228CST			0	0		5K	Hail(0.75)
<b>Warren County</b>									
3 W New Virginia	29	2236CST			0	0	5K	5K	Hail(0.88)
<b>Clarke County</b>									
Osceola	29	2241CST			0	0	3K		Thunderstorm Wind (EG50)
<b>Lucas County</b>									
Chariton	29	2255CST			0	0	5K		Thunderstorm Wind (EG61)
<b>Ringgold County</b>									
2 N Mt Ayr	29	2300CST			0	0	3K		Thunderstorm Wind (EG52)
<b>Marion County</b>									
Bussey	29	2320CST			0	0	5K		Thunderstorm Wind (EG57)
<b>Mahaska County</b>									
9 W Oskaloosa	29	2333CST			0	0	5K		Thunderstorm Wind (EG57)
<b>Mahaska County</b>									
2 SW Oskaloosa	29	2343CST			0	0	5K		Thunderstorm Wind (EG57)

A very dynamic synoptic situation was in place over the central U.S. during the day on the 29th. Warm and moist air was in place over Iowa with high temperatures for the day reaching the upper 80s to low 90s across the area. Surface dew point readings rose into the low to mid 70s by the early evening hours. This resulted in a very unstable airmass over the state with lifted indices in the -10 to -12 C. range and CAPE values in the 4500 to 5000 J/kg range. The airmass was quite warm with freezing levels in the 14000 to 15000 foot range. A closed upper low lifted northeast out of the central Rockies during the afternoon and evening. Surface low pressure lifted northeast across Nebraska, northeast into eastern North Dakota. A cold front trailing south from the low approached the state by the early evening hours. During the day, scattered convection broke out over the state. Clearing spread northeast as the upper level dry slot pushed northeast into the central U.S. Upper level winds increased in response to the approaching low with 500 Mb winds around 75 kts by the mid evening hours. Thunderstorms erupted quite rapidly during the early evening hours. Once initiation began, thunderstorms spread quickly in the unstable airmass. Mid level lapse rates were around 8 degrees C, which aided in thunderstorm development. With freezing levels quite high, hail was not a major factor with the storms. There were spotty reports of three quarter inch diameter hail to nickel size hail. Though hail was limited, a report indicated that hail fell hard enough in Warren County at mile post 44 along Interstate 35 that motorists were unable to see the road. The main mode of severe weather winds high wind. Reports of 60 to 75 MPH winds were very numerous. The highest winds recorded was in Union County west of Thayer with a measured gust of 81 MPH. Numerous trees were downed by the storms with power outages reported around the state. High winds destroyed a 40 x 80 foot storage building west of Manning in Crawford County. Another storm a camper in Boone County at Boxholm. In Hamilton County a semi-tractortrailer truck was blown over at the Flying J Truck Stop in Stanhope. Scattered reports of barns and grain bins being destroyed by the high winds were received. In Jasper County, some of the stronger winds occurred as the storm pass through areas east of Baxter. Winds of around 85 MPH blew down numerous trees, blew down an anchored corn crib, a machine shed, and blew hard enough to blow an air conditioning unit through the window into a house.